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Hanford Waste Treatment Plant receives decontamination vessels for High-Level Waste Facility

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Richland, Wash. -- Recently, the Hanford Waste Treatment Plant, also known as the "Vit Plant," received two decontamination vessels that are essential to safely removing glass-filled canisters from the High-Level Waste Facility. The titanium steel vessels weigh 4,200 pounds and measure 2.5 feet in diameter and 18 feet tall.

When operational, the High-Level Waste Facility will vitrify high-level radioactive waste by mixing it with glass-forming materials and heating the mixture to 2,100 degrees Fahrenheit in one of two identical 90-ton melters. The mixture will then be poured into stainless steel canisters, the exterior will be decontaminated and the canisters removed from the facility.

After a canister has been filled, an overhead crane will transport it from the melter area, through three layers of protective shield doors and to a decontamination vessel. It will then be inserted into the vessel and decontaminated through "etching," a process that removes an almost sheer layer from the vessel's exterior with an acidic compound. This is accomplished using the vessel's complex coil-and-spray system. The canister will also be rinsed with nitric acid and demineralized water before it is removed from the facility.

"We are committed to safe Vit Plant operations," Joe St. Julian, area project manager for the facility, said. "And the canister decontamination process is extremely thorough using proven technology to ensure that risks to people and the environment are removed."

The entire process is completed in approximately 12 hours.

The decontamination vessels were manufactured by Titanium Fabrication Corporation in New Jersey and delivered to the Vit Plant's storage facility in north Richland, Wash. They are scheduled to be installed in the High-Level Waste Facility next year.

"The High-Level Waste Facility is making good progress towards construction complete in 2016 and preparing to treat Hanford's tank waste in the future," Gary Olsen, federal area project manager for the facility, said.

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Bechtel National, Inc. is designing and building the world's largest radioactive waste treatment plant for the U.S. Department of Energy at the Hanford Site in southeastern Washington state. The $12.2 billion Waste Treatment and Immobilization Plant, also known as the "Vit Plant," will immobilize the radioactive liquid waste currently stored in 177 underground tanks using a process called "vitrification."

Vitrification involves blending the waste with molten glass and heating it to high temperatures. The mixture is then poured into stainless steel canisters. In this glass form, the waste is stable and impervious to the environment, and its radioactivity will dissipate over hundreds to thousands of years.

The Vit Plant will cover 65 acres with four nuclear facilities -- Pretreatment, Low-Activity Waste Vitrification, High-Level Waste Vitrification and Analytical Laboratory -- as well as operations and maintenance buildings, utilities and office space.

Construction of the Vit Plant began in 2001 and is more than 60 percent complete. The project is scheduled to complete construction in 2016; will reach commissioning in 2019 and achieve full operations in 2022.

The titanium steel vessels weigh 4,200 pounds and measure more than 2.5 feet in diameter and 18 feet tall. They will be installed vertically in the High-Level Waste Facility.

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